

Amendments to the Specification:

Please replace the TITLE and paragraphs [0001], [00218], [00232], [00265], [00270], [00271], [00273], [00284], and [00308], as shown below.

On page 1, lines 1-2, please amend the title as follows:

METHOD AND APPARATUS FOR POSITIONAL CALIBRATION OF ~~CALIBRATING A~~
THERMAL ANALYSIS INSTRUMENT

[0001] This application is a continuation application to U.S. Patent Application Serial No. 09/796,750, filed March 2, 2001, which claims priority to U.S. Provisional Application No. 60/491,443, entitled "Automatic Sampling Device," which was filed on January 26, 2001, which is incorporated by reference in its entirety.

[00218] Regarding electrically-sensed pan location, the electrical sensor can be used to sense the presence of a conductive or nonconductive pan. Resistance or ~~dielectric~~ dielectric properties can be measured. A measured property can be compared to a threshold in order to determine if fingers 730 are grasping a pan. Electrical sensing thresholds can be varied based on the pan type that is being used.

[00232] In a preferred embodiment, the rows are rotationally offset so that multiple wells can be accessed when at least one well is on the common arc of rotation. For example, sample well #1 1335, sample well #26 ~~1345~~ 1340, and reference well #1 1345 lie along the common arc, as shown in Figure 30. Likewise, sample well #6, sample well #31, and reference well #2 line on the common arc, and so forth.

[00265] Figure 50 is a more detailed view of step 4901 (see Figure 52A), ~~the~~ where a determination is made as to whether the system is ready to proceed with a calibration routine. Preferably, there are several steps within the “ready for calibration” step 4901. Turning to Figure 50, the system first checks to see if the reset routine is complete in step 5002. The reset routine is a series of steps performed by the system when the system is initially turned on or if a user instructs the system to conduct a reset routine. Preferably, the system waits until the reset routine has ended before commencing a calibration routine.

[00270] Figure 51 shows the preferred steps that are used to accomplish the “run automatic calibration routine” step 4906, shown in Figure 49. As shown in Figure 51, the automatic calibration routine preferably includes an initialization procedure, step 5102, a tray height calibration step 5104, a tray angular (θ) position calibration step 5106, a tray radial (R) position calibration step 5108, a cell height calibration step ~~5108~~ 5110, ~~and~~ a cell angular position calibration step ~~5110~~ 5112, ~~and a cell radial position calibration step 5114~~. After the cell calibration step ~~5110~~ 5114 has been accomplished, the automatic calibration routine is finished in step ~~5112~~ 5116.

[00271] The preferred steps used to accomplish initialization procedure step 5202, are shown in Figures 52B-52D. The first procedure to ensure that the gripping device 710 has dropped anything it may be currently holding. This procedure begins by determining if the gripping device 710 is holding a pan in step 5202. The system determines if gripping device 710 is holding something by using optical sensor 810 in

step 5204. The system then uses electrical sensor 730 in step ~~5208~~ 5206 to determine if gripping device 710 is holding a pan. If the system determines that gripper device 710 is holding a pan, the system instructs gripping device 710 to drop the pan in disposal area 140 (see Figure 1).

[00273] Returning to Figure 51, after the initialization procedure in step ~~5202~~ 5102 has been completed, the system then calibrates the relative heights of the gripper device 710 and the moving table 220 in step 5104. A preferred embodiment of this procedure is shown in Figure 53 and in Figure 52E, flow diagram steps 5234-5240. The system preferably calibrates the relative heights by moving the gripper device 710 towards moving table 220. Preferably, moving table 220 includes a conductive area or contact surface 1660, which is also preferably electrically conductive. Preferably, moving table 220 is placed in its home position for this height calibration procedure. Preferably, when moving table 220 is in its home position, gripper device 710 is able to move and contact the contact surface 1660.

[00284] Referring to ~~Figure 54 and Figure 52G~~ Figures 54, 55B, and 52G, the procedure begins by sample arm 125 being raised from contact area 1660 and rotated until it is disposed at a position 5403 that is circumferentially clockwise from the first reflective surface 1645. This is the preferred initial position referred to in step 5246.

[00308] An exemplary embodiment of the calibration procedure disclosed in connection with the DSC cell 120 is shown in steps 5354-5450 (See Figures 52V-52AF). Steps 5354-5450 use a different method, one that is more suitable to

computer implementation, or referring to the various physical elements. For example, in step 5354, the step states, "Start moving auto-sampler rotational motor with negative position limit sensing turned on in the clockwise direction." In step 5356, the procedure checks to see if a "negative edge" has been detected. What is meant by "negative edge" in both these steps is leading edge 5504 of second plug 1840. The procedure disclosed in Figures ~~52A-52AV~~ 52A-52AF calls one of the circumferential edges the "negative edge" and calls the other circumferential edge (trailing edge 5506 in the embodiment shown in Figure 55B) the "positive edge." The same is true for the first and second side edges. The procedure disclosed in Figures 52A-52AF refers to the first side edge as the "negative edge," (see, for example, steps 5402 and 5404 (See Figure 52AA)), and the second side edge as the "positive edge." (See, for example, 5412 and 5414 (See Figure 52AB)). This applies to all Figures 52A-52AF.